ABSTRACT

A dual wavelength laser in the low infrared electromagnetic spectrum is disclosed for destruction of bacteria via photo-damage optical interactions through direct selective absorption of optical energy by intracellular bacterial chromophores. The dual wavelength (NIMELS) laser includes an optical assembly and all associated components necessary for the housing of two distinct diode laser arrays (870nm diode array and 930nm diode array) that can be emitted through an output connector and wavelength multiplexer as necessary. With this preferred design, the dual wavelengths (870nm and 930nm) can be emitted singly, or multiplexed together to be conducted along a common optical pathway, or multiple optical pathways, to achieve maximal bacterial elimination.